

ABSTRACT OF THE DISCLOSURE

Methods and devices are provided for the efficient allocation and deletion of virtual output queues.

According to some implementations, incoming packets are
5 classified according to a queue in which the packet (or classification information for the packet) will be stored, e.g., according to a "Q" value. For example, a Q value may be a Q number defined as {Egress port number || Priority number|| Ingress port number}. Only a single
10 physical queue is allocated for each classification.

When a physical queue is empty, the physical queue is preferably de-allocated and added to a "free list" of available physical queues. Accordingly, the total number of allocated physical queues preferably does not exceed
15 the total number of classified packets. Because the input buffering requirements of Fibre Channel ("FC") and other protocols place limitations on the number of incoming packets, the dynamic allocation methods of the present invention result in a sparse allocation of
20 physical queues.